Sky and TELESCOPE

INDEX to Volume 55

January to June, 1978

Titles

About the Cover, 99 (correction, 310)
A. D. Thackeray, 371
Almanac Ring from the Middle Ages, An, *Saul Moskowitz,* 124
Amateur Radio Telescope, An, *G. W. Swenson, Jr.,* I, 385; II, 475
Anomalous Cepheid Masses, The, *Arthur N. Cox,* 115
Astronomy in Venezuela Today, *Hector Alvarez* and *Darrell J. MacConnell,* 103
Bright Future for the Night Sky, A, *Robert Pike* and *Richard Berry,* 126
Budapest Finally Gets Its Big Planetarium, *Gyula Schalk,* 9
California Nebula (NGC 1499), The, 482
Cosmonauts, Astronauts, Spaceships Galore, 203
Events of 1978 in the Graphic Time Table, 47
Exploring the Infrared Universe from Wyoming, *Robert D. Gehrz* and *John A. Hackwell,* 466
Forefathers of the MMT, *Luigi Jacchia,* 100
Forgotten Bicentenary, A: Johann Georg Soldner, *Stanley L. Jaki,* 460
Henry Norris Russell and the H-R Diagram, *A. G. Davis Philip* and *Louis C. Green,* 306
H-R Diagram as an Astronomical Tool, The, *A. G. Davis Philip* and *Louis C. Green,* 395
Jiling Meteorite, The, *Thomas Tsung,* 464
Kowal's Strange Slow-Moving Object, *Joseph Ashbrook,* 4
Laboratory Exercises in Astronomy — Hubble's Law, *Aneurin Evans,* 299
Lady of the Night, *John Lutnes,* 399
Little Green Men, White Dwarfs, or What? *S. Jocelyn Bell Burnell,* 218
Michigan's Space Center and Model Solar System, *Nan Johnson* and *Kenneth M. Yoss,* 303
Milky Way Photographs from Queensland, *Arthur A. Page,* 120
NASA Dilemma, The: What Price Space? *J. Kelly Beatty,* 27
New Hampshire's Student-Run Planetarium, *Eleanor Milliken,* 222
North America's Partial Eclipse, 6
October's Partly Cloudy Solar Eclipse, 15
Optical Remnant of the Supernova of 1181, *Sidney van den Bergh,* 196
Photographs of Deep-Sky Objects, *Hans Vehrenberg,* 295
Planetarium Design: A Winner Near Dallas, *James Rusk,* 480
Planetary Mapping with the Airbrush, *Raymond M. Batson,* 109
Quasars in Ultraviolet — Comparing Oranges and Oranges, *Dennis Overbye,* 31
Reflections Concerning Neptune's "Ring," *William G. Hoyt,* 284
Search for Exploding Black Holes, A, *Neil A. Porter* and *Trevor C. Weekes,* 113
Small Image-Intensifier Spectrograph, A, *Michael A. Seeds* and *Stephen Horan,* 302
Solar Observatory in the Canary Islands, A, *Jack B. Zirker,* 216
Solar Thermal Test Facility, *Charles A. Federer, Jr.,* 286
Spacelab 2 Mission, The, *J. D. Rosendhal,* 462
Total Eclipse of February 26, 1979, The, 486
Touring in England, *George Reed,* 375
Universe of Stamps, A, *George G. Young,* I, November, 1977, correction to, 215; II, 23; III, 207; IV, 391
Variable Galactic Nuclei, *Donald Hamilton, William Keel,* and *J. F. Nixon,* 372
Watching the Earth Move from Space, *Cynthia Wong,* 198

Authors

A'Hearn, Michael F., Photographs of Comet P/Arend-Rigaux, 293
Alvarez, Hector, and *Darrell J. MacConnell,* Astronomy in Venezuela Today, 103
Annett, Clarence H., book review, 75
Arny, Thomas, book review, 424
Arp, Halton, book review, 64
Ashbrook, Joseph, Astronomical Scrapbook, 20, 211, 380, 474
book reviews, 425, 526
Kowal's Strange Slow-Moving Object, 4
Observed Eclipses of Jupiter's Satellites, 265
Very Old and Some Very Young Moons, A, 358
Batson, Raymond M., Planetary Mapping with the Airbrush, 109
Beattie, John R., letter, 383
Beatty, J. Kelly, The NASA Dilemma: What Price Space? 27
Berry, Richard, see *Pike, Robert*
Blöte, H. W. J., Star Images in the Presence of Aberrations, 347
Bortle, John E., Comet Digest, 13 (correction, 215), 118, 206, 292, 381, 483
Burnell, S. Jocelyn Bell, Little Green Men, White Dwarfs, or What? 218
Chambliss, Carlson R., letter, 283
Chapman, Clark R., book review, 518
Cherrington, Ernest H., Jr., letter, 224
Cotton, John L., Southwestern Planetarians Meet in Arkansas, 495
Cox, Arthur N., The Anomalous Cepheid Masses, 115
Degewij, Johan, Comet Arend-Rigaux: Not Dead Yet, 14 (correction, 215)
DeVorkin, David H., book review, 73
Dunham, David W., letter, December, 1977; correction to, 3
May 8th Occultation of the Hyades, The, 418
Occultation Highlights for the Year 1978, 86
DuPuy, David L., Grinding a Clock Crystal, 436
Ebbighausen, E. G., book review, 341
Evans, Aneurin, Laboratory Exercises in Astronomy — Hubble's Law, 299
Evans, David S., letter, 459
Fairall, Anthony P., letter, 459
Faix, Louis J., Correcting Periodic Error in a Clock Drive, 439
Federer, Charles A., Jr., Solar Thermal Test Facility, 286
Ferrin, Ignacio, letter, 459
Fisher, Harold, Experiments with Hydraulic Tracking, 535
Ford, Bruce C., letter, 382
Gardner, Robert J., see *Rush, William F.*
Gehrz, Robert D., and *John A. Hackwell,* Exploring the Infrared Universe from Wyoming, 466
Gerharz, Reinhold, letter, 119
Gilbert, Richard E., Sidereal Conversion of a Heathkit Digital Clock, 433
Green, Louis C., see *Philip, A. G. Davis*
Grenchik, Raymond, book review, 164
Griffiths, Richard E., letter, 3
Gursky, Herbert, letter, 283
Hackwell, John A., see *Gehrz, Robert D.*
Hamilton, Donald, William Keel, and *J. F. Nixon,* Variable Galactic Nuclei, 372
Hamon, André, A Tangent Arm with a Specially Cut Cam, 530
Herrmann, Dieter B., book review, 166
Hoffleit, Dorrit, book review, 523
Horan, Stephen, see *Seeds, Michael A.*
Houston, Walter Scott, Deep-Sky Wonders, October, 1977, correction to, 3; 188, 274, 363, 451, 547
Hoyt, William G., Reflections Concerning Neptune's "Ring," 284
Irwin, John B., book review, 427
Jacchia, Luigi, Forefathers of the MMT, 100
Jaki, Stanley L., A Forgotten Bicentenary: Johann Georg Soldner, 460
Johnson, Nan, and *Kenneth M. Yoss,* Michigan's Space Center and Model Solar System, 303
Keel, William, see *Hamilton, Donald*
Kiang, T., letter, 119
Kowal, Charles T., letter, 195
Krupp, E. C., book review, 337
Labeyrie, Antoine, letter, 119
Lapointe, Mario, Which Films Are Worth Hydrogenating? 401

Lovi, George, Rambling Through . . . (current month) Skies, 46, 144, 236, 324, 412, 502
Lutnes, John, Lady of the Night, 399
Maag, Russell C., planetarian meeting report, 140
MacConnell, Darrell J., see *Alvarez, Hector*
Marschall, Laurence A., book review, 65
Mathews, Robert T., book review, 162
Matthijs, A. W. D., letter, 383
Meeus, Jean, letter, 3
Milliken, Eleanor, New Hampshire's Student-Run Planetarium, 222
Moses, A., letter, 119
Moskowitz, Saul, An Almanac Ring from the Middle Ages, 124
Mumford, George S., book review, 249
Nixon, J. F., see *Hamilton, Donald*
Overbye, Dennis, Quasars in Ultraviolet — Comparing Oranges and Oranges, 31
Page, Arthur A., Milky Way Photographs from Queensland, 120
Page, Thornton, book review, 165
Patsakos, George, summer camp at Lake Pend Oreille, Idaho, 227
Philip, A. G. Davis, and *Louis C. Green,* Henry Norris Russell and the H-R Diagram, 306
H-R Diagram as an Astronomical Tool, The, 395
Pike, Richard J., book review, 421
Pike, Robert, and *Richard Berry,* A Bright Future for the Night Sky, 126
Porter, Neil A., and *Trevor C. Weekes,* A Search for Exploding Black Holes, 113
Rao, Joseph, summer camp at New Paltz, N. Y., 229
Raycraft, Alan, A Reusable Pitch Mold, 533
Reed, George, Touring in England, 375
Rosendhal, Jeffrey, The Spacelab 2 Mission, 462
Rush, William F., book review, 69
Rush, William F., and *Robert J. Gardner,* planetarian meeting report, 139
Rusk, James, Planetarium Design: A Winner Near Dallas, 480
Schalk, Gyula, Budapest Finally Gets Its Big Planetarium, 9
Schroeder, Jeff R., A California Amateur's 11-inch Refractor, 257
Seeds, Michael A., and *Stephen Horan,* A Small Image-Intensifier Spectrograph, 302
Serkowski, Krzysztof, book review, 251
Sinnott, Roger W., conductor, Gleanings for ATM's, 78, 173, 257, 347, 433, 530
Slettebak, Arne, letter, 382
Soffen, Gerald A., letter, 283
Souther, B. L., Further Notes on Adjusting a Telescope, 173
Precise Adjustment of an Equatorial Mounting, The, 78
Sperling, Norman, From Kids to Quasars, 491
Sullivan, Woodruff T., III, book review, 160
Swenson, G. W., Jr., An Amateur Radio Telescope — I, 385; II, 475
Terzian, Yervant, book review, 253
Tifft, William G., book review, 520
Tsung, Thomas, The Jiling Meteorite, 464
Upgren, Arthur, letter, 382
van den Bergh, Sidney, Optical Remnant of the Supernova of 1181, 196
Vehrenberg, Hans, Photographs of Deep-Sky Objects, 295
Victor, Robert C., Planet Mercury During 1978, The, 59
Sun, Moon, and Planets This Month, 56, 150, 242, 330, 416, 512
Vis, Tjalling, summer camp at Königswinter, West Germany, 228
Walker, Merle F., letter, 382
Wallerstein, George, letter, 195
Watts, Raymond N., Jr., book review, 68
Weekes, Trevor C., see *Porter, Neil A.*
Weeks, Albert L., letter, 481
Wenning, Carl, Jupiter's Eastward Motion Resumes, 151
Venus Enters the Evening Sky, 246
West, John B., More About the Thumbwheel-Controlled Oscillator, 178
Westfall, John E., book review, 163
Wong, Cynthia, Watching the Earth Move from Space, 198
Yoss, Kenneth M., see *Johnson, Nan*
Young, George G., A Universe of Stamps — I, November, 1977, correction to, 215; II, 23; III, 207; IV, 391
Zirker, Jack B., A Solar Observatory in the Canary Islands, 216

Departments and Features

Amateur Astronomers —
Amateur and Planetarium Meetings This Spring, 230
Amateur Briefs, 38, 140, 406, 497
Free Telescopes, 39
From Kids to Quasars, 491
How To Fight Light Pollution, 133
Meteor Monitoring Is Meaningful, 37
Pennsylvania Planetarian, 497
Planetarians Meet in Ohio and Nebraska, 139
Southwestern Planetarians Meet in Arkansas, 495
Summer Camps in Idaho, West Germany, and New York, 227
Summer Gatherings in 1978, 315
Syndicated Astronomical Newspaper Columns, 314
Which Films Are Worth Hydrogenating? 401
Astronomical Scrapbook —
Four Lives of a 60-inch Reflector, The, 20
R. T. A. Innes and Jupiter's Satellites, 474
Solar Eclipse Expedition in 1883, A, 211
300 Years of Satellite Eclipses, 380
Books and the Sky —
Advances in Electronics and Electron Physics, Vol. 40: Photo-Electronic Image Devices, B. L. Morgan, R. W. Airey, and D. McMullan, editors, 251
Apollo Soyuz, Walter Froehlich, 68
Astronomie selbst erlebt, Klaus Lindner, 526
Astronomy, Frank N. Bash, 75
Astronomy: Fundamentals and Frontiers, Robert Jastrow and Malcolm H. Thompson, 341
Celestial Horizons, John C. Rosemergy, 69
Creation by Natural Law: Laplace's Nebular Hypothesis in American Thought, Ronald L. Numbers, 73
Essentials of Astronomy, Lloyd Motz and Anneta Duveen, 249
Evolution of Galaxies and Stellar Populations, The, Beatrice M. Tinsley and Richard B. Larson, editors, 520
Exploring the Galaxies, Simon Mitton, 165
Galaxy and the Local Group, The, R. J. Dickens and Joan E. Perry, editors, 427
Inner Planets, The, Clark R. Chapman, 421
Introduction to Astronomy, Ronald A. Oriti and William B. Starbird, 65
Maria Mitchell, First Lady of American Astronomy, Helen L. Morgan, 523
Mars and Its Satellites: A Detailed Commentary on the Nomenclature, Jürgen Blunck, 425
Moon Book, The, Bevan M. French, 163
Native American Astronomy, Anthony F. Aveni, editor, 337
New Cosmos, The, Albrecht Unsöld, 424
Planetary Satellites, Joseph A. Burns, editor, 518
Principles of Astronomy, Stanley P. Wyatt, 162
Pulsars, F. G. Smith, 160
Pulsars, Richard N. Manchester and Joseph H. Taylor, 253
Sterne-Kosmos-Weltmodelle, Otto Heckmann, 166
Structure of the Universe, The, Jayant Narlikar, 64
Universe, The, Donald Goldsmith, 164
Calculator Programs, 102, 301
Celestial Calendar —
Little Something for Everybody, A, 514
May 8th Occultation of the Hyades, The, 418
Meteors, 60, 419
Minima of Algol, 60, 156, 247, 335, 419, 515
Moon Phases and Distances, 60, 156, 246, 335, 419, 515
Observing RT Aurigae, a Cepheid Variable, 155
Occultation of Aldebaran, 334
Planet Mercury During 1978, The, 59
Total Lunar Eclipse, 247
Variable Star Maxima, 60, 156, 247, 335, 419, 515
Venus Enters the Evening Sky, 246
Vesta Reaches Naked-Eye Brightness This Spring, 333
Comet Digest, 13 (correction, 215), 118, 206, 292, 381, 483
Comet Arend-Rigaux: Not Dead Yet, 14 (correction, 215)
Photographs of Comet P/Arend-Rigaux, 293
Front-cover photographs —
Composite Eclipse Photograph, 1
Five Naked-Eye Planets, 457
Herstmonceux Castle, 369
Home-built Refractor in California, 193
Large Magellanic Cloud, 97
Solar Collector in New Mexico, 281
Gleanings for ATM's —
California Amateur's 11-inch Refractor, A, 257
Correcting Periodic Error in a Clock Drive, 439
Experiments with Hydraulic Tracking, 535
Further Notes on Adjusting a Telescope, 173
Grinding a Clock Crystal, 436
Man Versus Machine, 534
More About the Thumbwheel-Controlled Oscillator, 178
Precise Adjustment of an Equatorial Mounting, The, 78
Reusable Pitch Mold, A, 533
Sidereal Conversion of a Heathkit Digital Clock, 433
Star Images in the Presence of Aberrations, 347
Tangent Arm with a Specially Cut Cam, A, 530

In the Current Journals, 19, 213, 383, 484
Letters, December, 1977, correction to, 3; 3, 119, 195, 283, 382, 459
New Books Received, 77, 170, 255, 343, 429, 527
News Notes —
Almanac for Computers for the Year 1978, 310
AS 239: A Slow Nova? 484
Canadian Astrophysicist, 384
Chinese-American Astronomer, 106
Dwarf Nova V442 Centauri, The, 107
Eavesdropping on the Earth, 215
Eclipses of Iapetus by Saturn's Rings, 19
Fiber Optics in a Big Telescope, 213
First Results from IUE, 294
How Big Are the Galilean Satellites? 485
How Large Is the Sun? 108
How Many Satellites Has Saturn? 294
Huge Gas Shell Around Betelgeuse, 485
Jerslev Meteorite, 214
Kitt Peak Directorship, 485
Maud Makemson, 294
Meteorite Bonanza, 213
Meteoritic Night-Glow, 485
Millarville Meteorite, 19
Minor Planet Center To Move, 484
More About Chiron, 106
Naming Some Minor Planets, 214
New Cluster of Galaxies, A, 106
Object in Front of NGC 1199, The, 484
Occultations by Neptune, 106
Petrozavodsk Phenomenon, The, 19
Pioneer 11 and Saturn, 108
Planetary Nebula with a Double Nucleus, 213
Quasar in a Galaxy, A, 107
Rotation of a Comet Nucleus, 214
Solar Energy's Day in the Sun, 19
Two Unusual Minor Planets, 383
van den Bergh to Victoria, 19
Variable Star Inside a Nebula, 384
Viking amid Martian Frost, 106
VLA Goes into Operation, 384
Voyager Update, 215
What Are Zwicky's Compact Galaxies? 461
Observer's Page —
Atmospheric Distortion of the Rising Moon, 362
Deep-Sky Wonders, October, 1977, correction to, 3; 188, 274, 363, 451, 547
Eastern Lunar Eclipse, An, 545
Five Planets in the Evening Sky, 543
Jupiter's Close Encounter with 1 Geminorum, 268
More About October's Solar Eclipse, 181
More Asteroid Occultations for 1978, 356
More Young Moon Sightings, 453
Notes from Solar Observers, 539
Observed Eclipses of Jupiter's Satellites, 265
Occultation Highlights for the Year 1978, 86
Pazmino's Cluster, 275
Problicom Discovery Prize, 357
Recent Auroral Activity, 271
Starry Scenes from the Southwest, 446
Sunspot Numbers, 92, 187, 272, 364, 453, 548
Very Old and Some Very Young Moons, A, 358
Rambling Through . . . (current month) Skies, 46, 144, 236, 324, 412, 502
Southern Stars, 147, 327, 509
Stars for . . . (current month), 46, 144, 236, 324, 412, 502
Sun, Moon, and Planets This Month, 56, 150, 242, 330, 416, 512
Jupiter's Eastward Motion Resumes, 151
Jupiter's Satellites, 56, 150, 243, 331, 416
Uranus, Neptune, and Pluto in 1978, 58

Selected Topics and Celestial Objects

This listing is not intended to be exhaustive and does not supplant the other parts of the index. For example, material in such regular features as Books and the Sky is ordinarily indexed only under the Departments and Features section.

Amateur astronomers: societies, 38, 230, 315, 406; summer camps for, 227
Artificial satellites and spacecraft: Cosmos 955, 19; International Ultraviolet Explorer, 204, 294; Lageos, 198; NASA budget, 205; NASA launches, 205; NASA 20 years old, 27; new astronauts, 204; Petrozavodsk phenomenon, 19; Pioneer 11, 108; Soyuz-Salyut series, 203; Spacelab 2, 462; space museum in Michigan, 303; Viking 2, 106; Voyager 2, 215
Asteroids (see also Chiron): Center, 484; new names, 214; 1978 CA, 383; 1978 DA, 383
Auroras: recent, 271
Black holes: search for, 113
Calculators and computers: *Almanac for Computers,* 310; astronomical programs, 102, 301
Chiron: 4, 106, 195
Clocks: sidereal digital, 433, 436
Clusters: Open — Pazmino's, 275; M41, 188; NGC 2243, 188; NGC 2354, 189; NGC 2362, 189. Globular — Omega Centauri, 547; M3, 547; M4, 547; M13, 547; M68, 274; NGC 5466, 548
Comets (see also Chiron): Brooks Observatory circulars, 496; of 1977, 206, 292; rotation of nucleus, 214; P/Encke, 13; P/Schwassmann-Wachmann 1, 206, 292, 381, 483; Donati, 1858 VI, 214; P/Ashbrook-Jackson, 1977g, 483; P/Arend-Rigaux, 1977k, 13, 14 (correction, 215), 118, 292, 293; P/Chernykh, 1977l, 13, 118; Kohler, 1977m, 13 (correction, 215), 118, 206, 292; P/Wild 2, 1978b, 292, 381, 483; Bradfield, 1978c, 293, 381, 483; Meier, 1978f, 514
Constellation study: double stars, 324, 412; Hydrantus, 146; lost constellations, 144; Taurus, 46
Earth: as radio source, 215
Eclipses: May 6, 1883, solar, 211; October 12, 1977, solar, 6, 15, 181; February 26, 1979, solar, 486
Galaxies: compact, 461; distant cluster, 166; Hubble law, 299; Large Magellanic Cloud, 99; new cluster, 106; quasar in a, 107, 459; variable nuclei, 372; ESO 113-IG45, 108; M64, 451; M83, 274; M85, 452; Markarian 509, 372; NGC 1275, 372; NGC 2683, 363; NGC 2713, 275; NGC 2782, 363; NGC 2793, 364; NGC 2844, 363; NGC 2859, 363; NGC 4151, 372; NGC 4203, 451; NGC 4448, 451; NGC 5533, 547; NGC 7469, 372
Gamma-ray astronomy: 113
Geodesy, satellite: 198
History: almanac ring, 124; Common 60-inch reflector, 20, 224; eclipse of 1883, 211; H-R diagram, 306; Neptune's ring, 284; Perkins mirror, 382; pulsars, 218; Soldner, J. G., 460
Infrared astronomy: 467
Jupiter: and 1 Geminorum, 268; satellite eclipse timings, 265; satellite history, 380, 474
Light pollution: 126, 133, 382
Mars: cartography, 109
Meteorites: antarctic, 213; Jerslev, Denmark, 214; Jiling, China, 464; Millarville, Canada, 19
Meteors: observing, 37; sky glow from, 485
Milky Way: southern photographs, 120, 295
Moon: visibility of crescent, 358, 453
Museums: space — in Michigan, 303
Nebulae: Diffuse — California, 482; Crab, 197, 390; Gum, 296; North America and Pelican, 298; IC 2220, 384; IC 2944, 296. Planetary — NGC 3132, 213, 459; NGC 3242, 274
Neptune: ring, 284; to occult stars, 106
Novae: Ophiuchi 1977, 3; slow, 484
Observatories: Caracas, Venezuela, 103; Greenwich, England, 375; Herstmonceux, England, 378; Jelm Mountain, Wyo., 467; Jodrell Bank, England, 378; Merida, Venezuela, 103; solar, in Canary Islands, 216
Observatories, amateur: Mount Tamborine, Australia, 120
Personal notes: Bell, S. J., 218; Burbidge, G., 485; Carle, J. T., 319; Common, A. A., 20; Herget, P., 484; Huang, Su-Shu, 106; Kohler, M., 13; Makemson, M., 294; Russell, H. N., 306; Thackeray, A. D., 371; van den Bergh, S., 19; Young, R. K., 384
Photography: "astronomical landscapes," 446; hydrogen soaking, 401; Vehrenberg color method, 295
Planetariums: Budapest, Hungary, 9; Durham, N. H., 222; meetings, 139, 491, 495; Mesquite, Tex., 480
Planets: airbrush maps, 109; groupings, 3
Pulsars: first discoveries, 218; review, 160
Quasars: in a galaxy, 107, 459; 3C 273, 31
Radio astronomy: amateur radio telescope, 385, 475; eclipse observations, 181; 3C 58, 197; VLA, 384
Rocket astronomy: 3C 273 spectrum, 31
Saturn: and Pioneer 11, 108; Janus and Themis, 294; rings eclipse Iapetus, 19
Solar energy: sun day, 19; thermal facility, 286
Space (see Artificial satellites and spacecraft)
Spectrograph: image-intensifier, 302
Stamps, astronomical: 23, 207, 215, 391
Stars: Achernar seen from Texas, 119; Betelgeuse's shell, 485; H-R diagram, 306, 395 (correction, 485); masses, 115
Sun: diameter, 108; recent spots, 539
Sundials: 238
Supernovae: of 1054 on coin?, 283; remnant of 1181, 196
Telescopes and telescope making: aberrations, 347; adjustment of equatorial, 78, 173; astrolabe, photoelectric, 119; Calver mirror, 383; gamma-ray detector, 113; hydraulic tracking, 535; large space, 119; MMT, 283; multimirror, 100, 213; oscillator for drive, 178; periodic errors in drive, 439; ray tracing, 534; reusable pitch mold, 533; 10-inch Newtonian, 439; 11-inch refractor, 257; 60-inch Common, 20, 224
Ultraviolet astronomy: 204, 294
Variable stars: Cepheid masses, 115; RT Aurigae, 155; V341 Carinae, 384; V442 Centauri, 107
X-ray astronomy: Nova Ophiuchi 1977, 3

Sky & Telescope

INDEX to Volume 56

July to December, 1978

Titles

Alberta's Roving Planetarium, *John Brent Musgrave,* 487
Amateur Radio Telescope, An, *G. W. Swenson, Jr.,* III, 28; IV, 114; V (with *K.-S. Yang*), 201 (correction, 406); VI, 290
American Astronomers Visit China, *Leo Goldberg,* I, 279; II, 383
Astronomy Education for the Space Coast, *Michael T. Hutton,* 95
Behind the Scenes at "Sky and Telescope," *William E. Shawcross,* 518
Better Photograph of Coronal Streamers, A, *Johnnie Martinez,* 92
Distances of VV Cephei and Epsilon Aurigae, The, *Peter van de Kamp,* 397
Echelle Spectrograph, An, *J. B. Hearnshaw,* 6
Echellogram of Saturn, An, *David W. Latham,* 8
Einstein at the Royal Society, *Dennis Overbye,* 305
Encounters with Venus, *J. Kelly Beatty,* 484
First World Astronomy Meeting in America, *Donald E. Osterbrock,* 180
In Search of X-Ray Quasars, *Hale Bradt* and *Bruce Margon,* 499
John Goodricke and His Variable Stars, *Carolyn Gilman,* 400
League Convenes in Madison, The, *Norman Sperling,* 184
Mapping Planetary Nebulae with the VLA, *Robert M. Hjellming, R. Carl Bignell,* and *Bruce Balick,* 199
Mars' Closest Approaches to Earth, *Edwin Goffin* and *Jean Meeus,* 106
Modeling and Mapping Phobos, *Ralph Turner,* 299
New Absolute Calibration of Vega, A, *G. W. Lockwood, N. M. White,* and *H. Tüg,* 286
New Look at Karl Jansky's Original Data, A, *Woodruff T. Sullivan, III,* 101
New Observatories Designed for Public Viewing, 191
Notes on the H-R Diagram, *A. G. Davis Philip,* 20
On the Road With the Space Shuttle, 372
Origin of NASA, The: A 20-Year Perspective, *J. Kelly Beatty,* 276
Progress on NASA's 3-meter Infrared Telescope, *Gerald M. Smith,* 25
Puzzling Moons of Mars, The, *Joseph Veverka, Peter Thomas,* and *Thomas Duxbury,* 186
Riverside 1978: A Celebration of the First Decade, *Dennis di Cicco,* 111
Sampler of Personal Observatories, A, 295
Some Selected Sky Charts for the Amateur, *William J. Larson,* 507
Structure and Evolution of NGC 5128, The, *Reginald J. Dufour* and *Sidney van den Bergh,* 389
Student Projects in Astronomy, *Norman Sperling,* 195
Telling Time with Dolphins, 304
United Kingdom's Giant Infrared Reflector, The, *Colin M. Humphries,* 22
Universe of Stamps, A, *George G. Young* and *Jack H. Green,* V, 15
Updating Goethe Link Observatory, *R. K. Honeycutt, J. E. Kephart,* and *A. A. Henden,* 495
Waiting for HEAO B, *Dennis Overbye,* 396
Weather Prospects for February's Eclipse, *Edward M. Brooks,* 4
Western Amateurs Meet in California, *William F. Yantis,* 504
Why Is the Brightest Lunar Crater Named Aristarchus? *Ewen A. Whitaker,* 380
X-Ray Astronomy with HEAO 1, *Herbert Friedman* and *Kent S. Wood,* 490

Authors

Anderson, Jay, letter, 207
Annett, Clarence H., book review, 338
Ashbrook, Joseph, Astronomical Scrapbook, 99, 294, 515
  Eclipse Observations of Jovian Moons, 170
Balick, Bruce, see *Hjellming, Robert M.*
Barlow, Boris V., letter, 11
Beatty, J. Kelly, book review, 242
  Encounters with Venus, 484
  Origin of NASA, The: A 20-Year Perspective, 276
Bignell, R. Carl, see *Hjellming, Robert M.*
Birney, D. Scott, book review, 439
Blackburn, Pamela, public observatory report, 193
Boeshaar, Gregory O., letter, 10
Bortle, John E., Comet Digest, 19, 121, 190, 306, 388, 506
Boss, Lewis J., letter, 107
Both, Ernst E., book review, 58
Bowen, Keith P., O.D., More on Contact Lenses, 461
Bradt, Hale, and *Bruce Margon,* In Search of X-Ray Quasars, 499
Brooks, Edward M., Weather Prospects for February's Eclipse, 4
Buchroeder, R. A., Creativity and Computers, 156
Cline, Jack, A Telescope with Variable Eyepiece Height, 65
Cohen, Martin, book review, 555
Copeland, Bennett S., letter, 207
Cortes R., Manuel, amateur observatory report, 296
Covey, John R., Miniature Telescopes, 457
del Campo, Carlos, public observatory report, 193
DeLuca, Richard, amateur convention report, 315
de Vaucouleurs, G., book review, 148
di Cicco, Dennis, New Directions for an Old Hobby? 345
  Riverside 1978: A Celebration of the First Decade, 111
Dickinson, Terence, book review, 553
Drohomer, Bill, Channeling Pitch Laps, 155
Dufour, Reginald J., and *Sidney van den Bergh,* The Structure and Evolution of NGC 5128, 389
Dunham, David W., letter, 387
  Occultations by the Moon and Two Asteroids, 546
  Venus and the Moon on August 7th, 141
Duxbury, Thomas, see *Veverka, Joseph*
Entrop, Hubert A., Astrophotography with a Poncet Mounting, 462
Erbling, Paul R., public observatory report, 192
Friedman, Herbert, and *Kent S. Wood,* X-Ray Astronomy with HEAO 1, 490
Gilbert, Richard E., Sidereal Conversion of a Heathkit Digital Clock, May, 1978; correction, 67
Gilman, Carolyn, John Goodricke and His Variable Stars, 400
Goffin, Edwin, and *Jean Meeus,* Mars' Closest Approaches to Earth, 106
Goldberg, Leo, American Astronomers Visit China — I, 279; II, 383
Gordon, Rodger W., letter, 517
Green, Jack H., see *Young, George G.*
Grossmann, Martin, letter, 285
Hatfield, Larry S., Mounting a Finder Scope, 66
Hearnshaw, J. B., An Echelle Spectrograph, 6
Henden, A. A., see *Honeycutt, R. K.*
Hers, Jan, amateur observatory report, 298
Hicks, Robert D., III, book review, 334
Hjellming, Robert M., R. Carl Bignell, and *Bruce Balick,* Mapping Planetary Nebulae with the VLA, 199
Honeycutt, R. K., J. E. Kephart, and *A. A. Henden,* Updating Goethe Link Observatory, 495
Houston, Walter Scott, Deep-Sky Wonders, 83, 166, 267, 362, 474, 581
Humphries, Colin M., The United Kingdom's Giant Infrared Reflector, 22
Hutton, Michael T., Astronomy Education for the Space Coast, 95
Irwin, John B., book review, 144
Jacchia, Luigi G., letter, 207
Johnston, William D., Computers and the Amateur Astronomer, 215
Jokipii, J. R., book review, 56
Kephart, J. E., see *Honeycutt, R. K.*
King-Hele, Desmond, letter, 11
Kloeppel, James Eugene, letter, 11
Koegler, Claire Ann, book review, 558
Koolish, Richard M., A Drive Control in an Ammo Box, 566
Krumenaker, Lawrence, book review, 147
Kussner, Conrad, and *Van Rogers,* An Automatic Electronic Dewcap, 161
Lang, Kenneth R., book review, 60
Larson, William J., Some Selected Sky Charts for the Amateur, 507
Latham, David W., An Echellogram of Saturn, 8
Lockwood, G. W., N. M. White, and *H. Tüg,* A New Absolute Calibration of Vega, 286
Lovi, George, Rambling Through . . . (current month) Skies, 44, 132, 224, 320, 424, 534
Lowe, Andrew, letter, 517
Lunsford, Bob, letter, 10
Maag, Russell C., amateur convention report, 313
Maley, Paul, see *Saulietis, Andy*
Margon, Bruce, see *Bradt, Hale*
Marschall, Laurence A., book review, 240
Marsden, Brian G., letter, 387
Marsh, Franklin, amateur convention report, 312
Martinez, Johnnie, A Better Photograph of Coronal Streamers, 92
Meeus, Jean, letter, 517
  see also *Goffin, Edwin*

Mobsby, E. G. H., The "Hairbrush" Telescope Mirror, 569
Moore, A. Reed, letter, 10
Moore, Carroll, public observatory report, 191
Morgan, Walter V., A Notable Month for Occultations in Taurus, 50
Musgrave, John Brent, Alberta's Roving Planetarium, 487
Needham, Grenville, letter, 207
Olowin, R. P., book review, 337
Osterbrock, Donald E., First World Astronomy Meeting in America, 180
Overbye, Dennis, Einstein at the Royal Society, 305
Waiting for HEAO B, 396
Page, Thornton L., book review, 443
letter, 285
Penhallow, William S., Notes on a 16-inch Astrometric Reflector, 455
Philip, A. G. Davis, Notes on the H-R Diagram, 20
Pike, Richard J., book review, 444
Polman, Jorge, amateur convention report, 315
Primi, Don, amateur observatory report, 298
Rizzo, Patrick V., book reviews, 243, 245
Rogers, Van, see *Kussner, Conrad*
Rouvière, Francois, A Telescope for Solar Photography, 356
Sacharow, Allan, amateur convention report, 313
Sahula, Peter, Winter Observing from a Heated Dome, 67
Saulietis, Andy, and *Paul Maley*, A Pipe Mount for Comet Seeking, 73
Schricker, Don, amateur observatory report, 295
Schultz, Sherman W., Jr., Mirror Making at Macalester College, 249
Shawcross, William E., Behind the Scenes at "Sky and Telescope," 518
Sinnott, Roger W., conductor, Gleanings for ATM's, 65, 155, 249, 345, 455, 566
Smith, Gerald M., Progress on NASA's 3-meter Infrared Telescope, 25
Smolek, Michael K., Foucault Enigma, 67
letter, 387
Soder, James, amateur observatory report, 297
Sperling, Norman, amateur convention report, 310
"Astronomy Day" Sprouts Nationwide, 35
International Union of Amateur Astronomers, The, 409
League Convenes in Madison, The, 184
Rich Variety of Canadian Astronomy, The, 123
Student Projects in Astronomy, 195
Standing, William H., letter, 517
Steinberg, Warren, public observatory report, 192
Sullivan, Woodruff T., III, A New Look at Karl Jansky's Original Data, 101
Swenson, G. W., Jr., An Amateur Radio Telescope — III, 28; IV, 114; V (with *K.-S. Yang*), 201 (correction, 406); VI, 290
Tangherlini, Frank R., letter, 517
Thomas, Peter, see *Veverka, Joseph*
Tüg, H., *see* Lockwood, G. W.
Turner, Ralph, Modeling and Mapping Phobos, 299
van de Kamp, Peter, The Distances of VV Cephei and Epsilon Aurigae, 397
van den Bergh, Sidney, see *Dufour, Reginald J.*
Verschuur, Gerrit L., book review, 551
Veverka, Joseph, Peter Thomas, and *Thomas Duxbury*, The Puzzling Moons of Mars, 186
Victor, Robert C., Sun, Moon, and Planets This Month, 48, 138, 230, 326, 428, 544
Walborn, Nolan R., letter, 107
Warner, Brian, letter, 517
West, Richard M., letter, 207
Whitaker, Ewen A., Why Is the Brightest Lunar Crater Named Aristarchus? 380
White, N. M., see *Lockwood, G. W.*
Williams, John O., letter, 208
Williams, Thomas R., amateur convention report, 309
Wood, Kent S., see *Friedman, Herbert*
Woolf, Neville J., letter, 107
Worrick, Charles, amateur observatory report, 296
Yang, K.-S., see *Swenson, G. W., Jr.*
Yantis, William F., Western Amateurs Meet in California, 504
Young, George G., and *Jack H. Green*, A Universe of Stamps — V, 15

Departments and Features

Amateur Astronomers —
Amateur Briefs, 39, 126, 219, 526
Amateur Conventions Galore, 309
"Astronomy Day" Sprouts Nationwide, 35
Autumn Meetings, 221
Checking Out Club Telescopes, 525
Computers and the Amateur Astronomer, 215
International Union of Amateur Astronomers, The, 409
Photo Contest, 527
Rich Variety of Canadian Astronomy, The, 123
Update on Astronomy Days, 527
Astronomical Scrapbook —
Augustus de Morgan's *Budget of Paradoxes*, 294
Curious Career of Leo Brenner, The, 515
Elusive Asteroid, An: 719 Albert, 99
Books and the Sky —
Annual Review of Astronomy and Astrophysics, Vol. 15, Geoffrey Burbidge, David Layzer, and John G. Phillips, editors, 144
Astronomical Catalogues 1951-1975, Mike Collins, compiler, 60
Astronomy: The Cosmic Journey, William K. Hartmann, 338
Astronomy Now, Jay M. Pasachoff, 558
Astronomy: Principles and Practice, A. E. Roy and D. Clarke, 439
Astronomy: Structure of the Universe, A. E. Roy and D. Clarke, 439
Atlas of Mercury, The, Charles A. Cross and Patrick Moore, 147
Beyond the Moon, Paolo Maffei, 443
Cambridge Encyclopaedia of Astronomy, The, Simon Mitton, editor-in-chief, 337
Closeup: New Worlds, Ben Bova and Trudy Bell, editors, 553
Concise Encyclopedia of Astronomy, A. Weigert and H. Zimmermann, 58
Décalages vers le Rouge et Expansion de l'Univers; l'Evolution des Galaxies et Ses Implications Cosmologiques, C. Balkowski and B. E. Westerlund, editors, 148
Discovering Astronomy, R. D. Chapman, 240
From Vinland to Mars, Richard S. Lewis, 245
In Search of Ancient Astronomies, E. C. Krupp, editor, 334
Mars at Last! Mark Washburn, 242
Mission to Earth: Landsat Views the World, Nicholas M. Short, Paul D. Lowman, Jr., Stanley C. Freden, and William A. Finch, Jr., 444
Physical Processes in the Interstellar Medium, Lyman Spitzer, Jr., 555
Pioneer Odyssey, Richard O. Fimmel, William Swindell, and Eric Burgess, 56
Search for Extraterrestrial Intelligence, The: SETI, Philip Morrison, John Billingham, and John Wolfe, editors, 551
This Wild Abyss, Gale E. Christianson, 243
Calculator Programs, 14, 198
Celestial Calendar —
Conjunctions of the Jovian Moons, 434
Exceptional Occultation of the Hyades, An, 234
Jupiter Satellite Eclipses, 434
Meteors, 51, 331, 434, 547
Minima of Algol, 52, 142, 237, 329, 435, 548
Moon Phases and Distances, 52, 142, 237, 331, 435, 548
Notable Month for Occultations in Taurus, A, 50
November's Well-Placed Occultation of Aldebaran, 433
Occultations by the Moon and Two Asteroids, 546
Perseid Prospects for Meteor Watchers, 140
Sunrise at the Moon's Straight Wall, 330
Two Fine Variable Stars Ready To Perform, 329
Variable Star Maxima, 52, 142, 237, 329, 435, 548
Venus and the Moon on August 7th, 141
see also Sun, Moon, and Planets This Month
Comet Digest, 19, 121, 190, 306, 388, 506
Front-cover photographs —
Array of Star Atlases, An, 481
Astronaut Memorial Hall, 89
Moon and Venus Conjunction, 273
NASA's New Infrared Observatory, 1
Phobos and Deimos, 177
Space Shuttle Fuel Tank, 369
Gleanings for ATM's —
Astrophotography with a Poncet Mounting, 462
Automatic Electronic Dewcap, An, 161
Channeling Pitch Laps, 155
Creativity and Computers, 156
Drive Control in an Ammo Box, A, 566
Foucault Enigma, 67
"Hairbrush" Telescope Mirror, The, 569
Miniature Telescopes, 457
Mirror Making at Macalester College, 249
More on Contact Lenses, 461
Mounting a Finder Scope, 66
New Directions for an Old Hobby? 345
New Way To Make Pinhole Light Sources, A, 460
Notes on a 16-inch Astrometric Reflector, 455
Pipe Mount for Comet Seeking, A, 73
Sidereal Conversion of a Heathkit Digital Clock, May, 1978; correction, 67
Some Forerunners of the Sellers Mount, 157
Telescope with Variable Eyepiece Height, A, 65
Winter Observing from a Heated Dome, 67
In the Current Journals, 108, 209, 283, 404, 497
Letters, 10, 107, 207, 285, 387, 517
New Books Received, 62, 151, 247, 342, 452, 563
News Notes —
Age of the Geminid Meteor Stream, 211
Aid for Solar Energy Users, 94
Algol B Detected, 108
Another X-ray Binary and Possible Black Hole, 110
Asteroids and Planets X, 399
Atlas of a Nearby Galaxy, 109
Belated Comet, 211
Bound for Venus, 12
Calibrating Quasars, 212
Change in Uranus' Atmosphere, 406
Daytime Sky Phenomenon, 284
Earliest Life? 283
Extraterrestrial Particles in Deep-Sea Sediments, 498
First Glimpse of Uranus' Rings, 497
532 Herculina as a Double Asteroid, 210
Forecasting the Next Sunspot Maximum, 209
Gamma Rays from the Galactic Center, 497
How Far Are the Nearest Galaxies? 406
Is the Solar System Heading into an Interstellar Cloud? 211

Listening with the Big Ear, 405
M87's Massive Heart, 12
Mexican Centennial, 12
Michigan Astronomer, 498
Missions to the Planets, 284
More Rings Around Uranus, 108
Near-Eastern Record of the Supernova of 1054, A, 110
News of Chiron, 5
978 Spectroscopic Binaries, 284
Notes on Some Asteroids, 285 (correction, 517)
Nova Cygni 1978, 404
Observing Time at Cloudcroft, 395
Pacific Meteorite Fall? 210
Pluto's Possible Satellite, 110
Pluto's Satellite, 211
Ra-Shalom, 405
Runaway Star in Virgo, 209
Scientists for Spacelabs 1 and 2, 283 (correction, 498)
Solar Specialist, 105
Soviet Lunar Expert, 105
Study of Sirius, A, 283
Successful Preventive Surgery on the 40-inch Yerkes Objective, 405
Tunguska Event and Encke's Comet, The, 497
22,000 Stellar Spectra, 399
Two Cepheids of Very Long Period? 405
Unusual Antarctic Meteorite, 110
Unusual Minor Planet, An, 5
UU Sagittae and the Planetary Nebulae, 12
Washington Astronomer, 109
Well-Deserved Nobel Prize, 497
X-rays from SS Cygni, 121

Observer's Page —
Album of Planetary Groupings, An, 257
Are the Perseids Improving? 465
Deep-Sky Wonders, 83, 166, 267, 362, 474, 581
Eclipse Observations of Jovian Moons, 170
Major Auroras in Early May, 77
Metric-English Equivalents, 84, 173, 268, 364, 476, 588
Midsummer Night's Conjunction, A, 361
More About Last March's Lunar Eclipse, 168
Notes on Some Auroral Activity, 583
Of Planets and Stars, 75
September's Total Lunar Eclipse, 577
Sunspot Numbers, 84, 172, 267, 363, 473, 582
Telescope for Solar Photography, A, 356

Radio Waves, 406

Rambling Through . . . (current month) Skies, 44, 132, 224, 320, 424, 534

Southern Stars, 135, 541

Stars for . . . (current month), 44, 132, 224, 320, 424, 534

Sun, Moon, and Planets This Month, 48, 138, 230, 326, 428, 544
Jupiter's Satellites, 139, 232, 327, 428, 544

Selected Topics and Celestial Objects

This listing is not intended to be exhaustive and does not supplant the other parts of the index. For example, material in such regular features as Books and the Sky is ordinarily indexed only under the Departments and Features section.

Amateur astronomers: AAVSO, 309; AL, 184, 310, 527; "Astronomy Day," 35, 527; Belgium, 126; IUAA, 409; meetings, 219, 309, 409, 526; National Park programs, 11; RASC, 123; Riverside, Calif., 111; *Sonne,* 527; Stellafane, Vt., 345; WAA, 504

Artificial satellites and spacecraft: Chinese tracking, 384; HEAO 1, 490; HEAO B, 396; Pioneer Venus, 12, 284, 484; Spacelab scientists, 283; Space Shuttle, 372; Venera 9 and 10, 484; Vikings, 284

Asteroids: 532 Herculina double, 210, 387; 719 Albert, 99; 1802 Zhang Heng, 285; 2060 Chiron, 5; 2062 Aten, 285 (correction, 517); 2063 Bacchus, 285; 2067 Aksnes, 285; 2079 Jacchia, 285; 2100 Ra-Shalom, 405; 1973 SC2, 5, 387

Astronomy education, public: Cocoa, Fla., 95; science fair projects, 195

Atlases: Small Magellanic Cloud, 109; star — for amateurs, 507

Auroras: recent, 77, 583

Black holes: 110, 490

Calculators and computers: astronomical programs, 14, 198; computers and the amateur, 215

China, astronomy in: 279, 285, 383

Clusters: Open — Brocchi's, 166; h and Chi Persei, 474; M6, 83; M11, 166; NGC 6400, 83; NGC 6885, 267; H 16, 83. Globular — M15, 362; NGC 6441, 83

Comets: Encke's and Tunguska event, 497; 1882 II, 190; P/Schwassmann-Wachmann 1, 1925 II, 306, 506; Weinberger, 1952, 211; P/Ashbrook-Jackson, 1977g, 19, 121, 190, 306, 388, 506; Kohler, 1977m, 19; P/Comas Sola, 1977n, 306, 388; P/Wild 2, 1978b, 19, 121, 517; Meier, 1978f, 19, 121, 190, 388; P/Haneda-Campos, 1978j, 388, 506; Giclas, 1978k, 388; Machholz, 1978l, 388, 506; Seargent, 1978m, 506; Fujikawa, 1978n, 506; Bradfield, 1978o, 506

Conjunctions: recent planetary, 257

Constellation study: Chinese legend, 207; Herschel classes, 320; Japanese legend, 44; Lyra, 132

Cosmology: 305

Double and multiple stars: Algol, 108; Epsilon Aurigae, 397; 978 spectroscopic binaries, 284; Sirius, 283; VV Cephei, 397

Earth: Landsat pictures, 449

Eclipses: June 30, 1973, solar, 92; March 24, 1978, lunar, 168; September 16, 1978, lunar, 577; February 26, 1979, solar, 4, 207

Extraterrestrial intelligence: 405

Galaxies: Chinese studies, 386; distances of nearby, 406; massive core of M87, 12; Small Magellanic Cloud, 109; M31, 474; NGC 23, 363; NGC 26, 582; NGC 3172 (Polarissima), 474; NGC 5128, 389; NGC 6822, 166; NGC 7217, 363; NGC 7479, 362

Gamma-ray astronomy: galactic center, 497; quasars, 503

Hertzsprung-Russell diagram: 20

History: asteroid Albert, 99; Brenner, Leo, 515; *Budget of Paradoxes,* 294; early lunar nomenclature, 380; 1893 Congress of Astronomy and Astrophysics, 180; Goodricke, John, 400; Jansky's radio observations, 101; multi-mirror telescopes, 11; NASA's origins, 276; Newton, Isaac, 11, 207; Soldner, J. G., and gravitational deflection of light, 517

Infrared astronomy: NASA 3-meter telescope, 25; UK 3.8-meter telescope, 22

Jupiter: satellite eclipse timings, 170

Mars: and Praesepe, 75; close approaches, 106; Phobos models and maps, 299; satellite surfaces, 186, 387

Meteorites: Antarctic, 110; deep-sea deposits, 498; New Caledonian fall? 210; Tunguska event, 497; Wimberley, Tex., 208

Meteors: Geminid stream, 211; Perseids observed, 465

Moon: Aristarchus, 380; Davy Y, 387; early maps, 380; long shallow valley, 195, 517; Straight Wall, 330

Nebulae: Diffuse — North America, 206; M17, 267. Planetary — radio observations, 199; Abell 63, 12; M27, 166; NGC 40, 199; NGC 246, 582; NGC 1535, 582; NGC 6572, 267, 581; NGC 7009, 581; NGC 7027, 199; NGC 7354, 200; NGC 7662, 474; IC 3568, 200

Novae and supernovae: Nova Cygni 1978, 404; SN 1054, 100

Observatories: Cloudcroft, 395; Goethe Link, 495; Mauna Kea, 22, 25; National Observatory of Mexico, 12; Peking, China, 281; Purple Mountain, China, 279; Shanghai, China, 281; Shensi, China, 281; Yunnan, China, 280

Observatories, amateur and public: Brea, Calif., 295; El Arrayan, Chile, 193; Fort Myers, Fla., 192; Hanson, Mass., 296; Java Center, N. Y., 192; Lerida, Spain, 296; Lincoln, Neb., 191; Maiden, N. C., 193; Manhasset, N. Y., 298; Randburg, South Africa, 298; Sidney, Ohio, 297; Woodstock, N. Y., 71

Occultations: of Venus by the moon, 361

Personal notes: Brenner, Leo (S. Gopcevic), 515; Goodricke, J., 400; Jansky, K., 101; Klüber, H. von, 105; Lipskij, Yu. N., 105; Losh, Hazel, 498; Meier, R., 19; Penzias, A., 497; Pigott, N. and E., 401; Wilson, R., 497; Woolard, E. W., 109

Photography: enhancement of old negatives, 92; Geneva conference, 207; picture processing and NGC 5128, 389

Planetariums: Alberta's roving, 487; Cocoa, Fla., 95; student-built, 198

Pluto: satellite, 110, 211

Pulsars: X-ray, 490

Quasars: distances, 212; X-ray, 499

Radio astronomy: amateur radio telescope, 28, 114, 201, 290; in China, 386; Jansky's observations, 101; planetary nebulae, 199; VLA status, 199

Relativity, general: 305

Saturn: echelle spectrogram, 8

Solar energy: household solar index, 94

Solar system: entering an interstellar cloud, 211

Space (see Artificial satellites and spacecraft)

Spectrographs: echelle, 6, 8

Stamps: astronomical, 15

Stars: Achernar seen from U. S., 10; — from Israel, 285; distances, 397; runaway, 209; spectral catalogues, 399; Vega calibrated, 286

Sun: Chinese studies, 383; coronal photography, 92; *Sonne,* 527; 20-cm telescope for solar photography, 356

Sundials: Greenwich, England, 304

Sunspots: April 29, 1978, 77; next maximum, 209, 517

Telescopes and telescope making: Chinese solar, 383; college mirror making class, 249; contact lenses, 461; drive control, 566; electronic dewcap, 161; forerunners of Sellers mount, 157; Foucault test, 67, 461; Herschel mirrors, 517; miniature, 457; monochromator for planets, 197; mounting a finder, 66; mylar window for dome, 67; optical design and computers, 156; pinhole sources, 460; pipe mount for comet seeker, 73; pitch laps, 155; Poncet mounting, 462; Riverside convention, 111; Stellafane convention, 345; 8-inch reflector with adjustable eyepiece height, 65; 16-inch astrometric reflector, 455; 40-inch Yerkes refractor, 405; 20-cm for solar photography, 356; 2-meter Chinese, 385; 3-meter infrared, 25; 3.8-meter infrared, 22; 4.5-meter-equivalent MMT, 107

Uranus: and Alpha Librae, 76; atmospheric change, 406; rings, 108, 497

Variable stars: Antares phenomenon, 207; Cepheids of very long period?, 405; Chinese studies, 385; in Small Magellanic Cloud, 109; Epsilon Aurigae, 397; VV Cephei, 397; Omicron Ceti (Mira), 329; SS Cygni, 121; Theta[1] Orionis A, 329; Beta Persei (Algol), 108; UU Sagittae, 12

Venus: spacecraft reconnaissance, 484; visibility, 224

X-ray astronomy: HEAO B, 396; quasars, 499; SS Cygni, 121; V861 Scorpii, 110; with HEAO 1, 490